What is claimed is:

1. A communication satellite comprising:

a self addressed packet switch routing uplink data to a memory, the uplink data destined for at least one of a first and a second downlink beam hop location; and

a switch that directs a waveform derived in part from the uplink data to a selected radiating element of a multiple beam array antenna in response to a hop selection signal; wherein

the multiple beam array antenna directs the waveform to at least one of the first downlink beam hop location and the second downlink beam hop location.

2. The communication satellite of claim 1, wherein the memory comprises queues assigned to the first and the second downlink beam hop location.

3. The communication satellite of claim 1, wherein the memory comprises queues distinguished by beam hop location and priority.

4. The communication satellite of claim 3, wherein the memory comprises queues further distinguished by a code rate.

5. The communication satellite of claim 4, wherein the queues are distinguished by a plurality priorities, a plurality code rates, and a plurality ~~hop locations~~.

6. The communication satellite of claim 1, wherein the multiple beam array antenna comprises a plurality of radiating elements each assigned to a different downlink beam hop location.

7. The communication satellite of claim 1, wherein the multiple beam array antenna comprises at least a first radiating element for the first downlink beam hop location and a second radiating element for the second downlink beam hop location, the first and

second radiating elements feeding at least one reflector.

8. The communication satellite of claim 7, wherein the first and second radiating element are feedhorns.

9. A data routing subsystem for a communication satellite, the subsystem comprising:

an inbound module accepting demodulated uplink data, the inbound module including a routing table that stores queue tags specifying downlink beam hop locations for the uplink data;

a switch having an input port coupled to the inbound module;

an outbound module coupled to an output port of the switch, the outbound module including a memory for storing the uplink data according to the downlink beam hop locations; and

a multiple beam array antenna coupled to the outbound module, the multiple beam array antenna comprising a first feed element assigned to a first downlink beam hop location and a second feed element assigned to a second downlink beam hop location.

10. The data routing subsystem of claim 9, wherein the first and second feed elements are feed horns.

11. The data routing subsystem of claim 9, wherein the queue tag further specifies code rate for the uplink data.

12. The data routing subsystem of claim 11, wherein the queue tag further specifies priority for the uplink data.

13. The data routing subsystem of claim 9, wherein the routing table additionally stores routing tags indicative of at least one switch output port.

14. The data routing subsystem of claim 9, wherein the routing table is addressed with an address included in the uplink data.

15. The data routing subsystem of claim 14, wherein the address is at least one of a VPI and VCI field in an ATM cell.

16. The data routing subsystem of claim 15, wherein the routing additionally stores a replacement address for the uplink data.

17. A method for communicating data through a communication satellite, the method comprising:

looking up a memory queue indicative of hop location using an address included in uplink data.

storing the uplink data in the memory queue;

retrieving the uplink data and preparing a waveform to be transmitted;

selecting a feed path for the waveform according ~~to the hop location; and~~

transmitting the waveform using a multiple beam array antenna.

18. The method of claim 17, wherein looking up comprises looking up a queue tag for the uplink data.

19. The method of claim 18, wherein the step of looking up further comprises looking up a queue tag specifying the priority for the uplink data.

20. The method of claim 19, wherein the step of looking up further comprises looking up a queue tag specifying a code rate for the uplink data.

21. The method of claim 17, further comprising the steps of looking up a routing tag for the uplink data and switching the uplink data to the memory using the routing tag.

22. The method of claim 17, wherein selecting a feed path comprises switching a ferrite switch.